3

USING THE SYSTEM UTILITIES

After reading this chapter and completing the exercises, you will be able to:

♦ Understand and use the Control Panel applets

♦ Use the Scheduled Tasks to automate tasks

♦ Install and configure new hardware

♦ Create hardware profiles for changing system configurations

♦ Describe the versatility of the Microsoft Management Console

♦ Create your own custom MMC consoles

Windows XP includes a wide range of system utilities in the Control Panel or in Administrative Tools. A thorough knowledge of these utilities will help you manage, tune, and improve your system.

CONTROL PANEL OVERVIEW

As with previous Microsoft operating systems, the **Control Panel** is one of the most important centralized locations for management utilities under Windows XP. The Windows XP Control Panel will seem familiar, so you shouldn't get lost. However, you'll find several new **applets** and a whole new view. By default, the Control Panel now appears in Category View (see Figure 3-1), which groups common functions of the Control Panel applets into interfaces called categories. By launching a category and answering the appropriate questions, you will be taken to the appropriate applet's dialog box to perform most of the common activities related to system configuration (see Figure 3-2). The categories are simply an alternate navagational method to the same configuration interfaces in Classic View of the control panel. From within a category Wizard, you can jump to the specific applet related to the desired function by clicking it from the list at the bottom of the screen. Those more comfortable with a Windows NT–style interface can switch to what Microsoft calls the Classic View. Switching between Classic View and Category View is simple, just click the Switch to command located in the left column of the Control Panel.
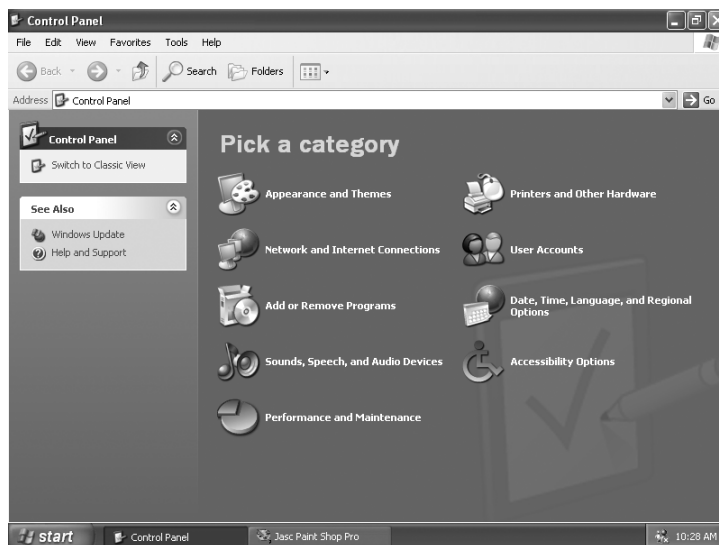

Figure 3-1   The Control Panel in Category View

The Category View offers nine groupings for various common configuration changes. Table 3-1 lists the categories and their related applets. Take a little time to explore the category Wizards on your own. You'll probably find them self-explanatory; no further guidance on their use may be needed.
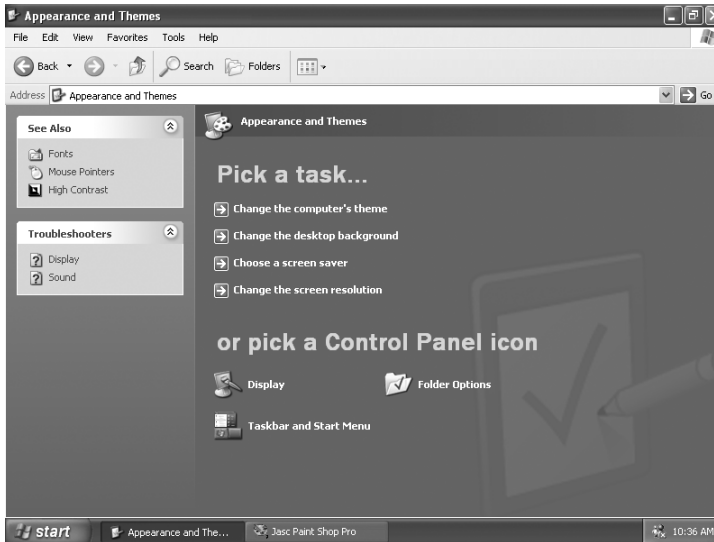
Figure 3-2 The Appearance and Themes category Wizard

Table 3-1 Categories from the Control Panel

Categories	Related Applets
Accessibility Options	Accessibility Options
Add or Remove Programs	Add or Remove Programs
Appearance and Themes	Display, Folder Options, Taskbar and Start menu
Date, Time, Language, and Regional Options	Date and Time, Regional and Language Options
Network and Internet Connections	Internet Options, Network Connections
Performance and Maintenance	Administrative Tools, Power Options, Scheduled Tasks, System
Printers and Other Hardware	Game Controllers, Keyboard, Mouse, Phone and Modem Options, Printers and Faxes, Scanners and Cameras
Sounds, Speech, and Audio Devices	Speech, Sounds and Audio Devices
User Accounts	User Accounts

If you are a newcomer to Windows, you'll find the categories a welcome simplification of Windows XP configuration interface navigation. If you are a Windows veteran, you might find the categories too restrictive. In the details column to the left of the category area, you can click the Switch to Classic View option to get to the display of the individual applet icons (see Figure 3–3). The Control Panel hosts the applets and utilities used to install and configure **devices** and software (particularly **services**). There are several common or basic applets that always appear in the Control Panel, but other

applets can be added depending on the services, components, or applications installed onto Windows XP. The common Control Panel applets are discussed in the following sections.
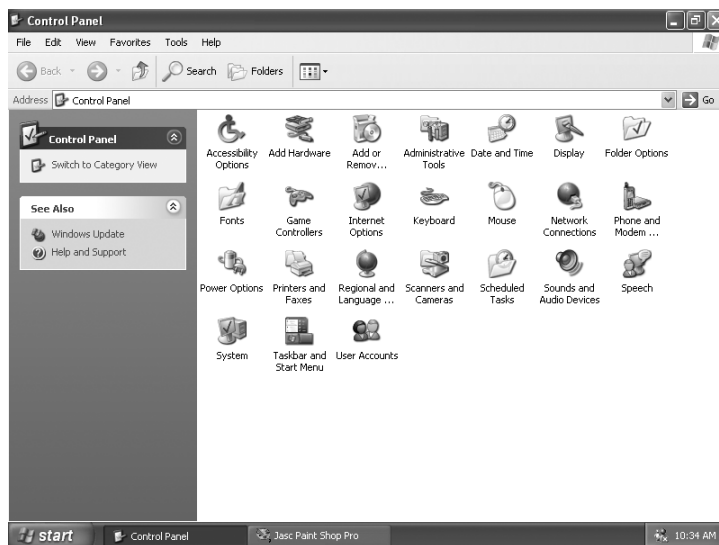

Figure 3-3 The Control Panel applet icons in Classic View

Accessibility Options

The Accessibility Options applet is where special interface features can be enabled and tuned for the visual-, audio-, or movement-impaired user. There are five tabs in this applet. The Keyboard tab is used to configure:

- *StickyKeys*—Enables the use of Ctrl, Shift, or Alt by pressing once instead of requiring holding.

- *FilterKeys*—Used to ignore quick or repeated keystrokes.

- *ToggleKeys*—Plays a tone when Caps Lock, Scroll Lock, or Num Lock is active.

The Accessibility Options applet's Sound tab is used to configure SoundSentry and ShowSounds. SoundSentry displays visual clues such as a title bar, window, or the desktop when the system plays a sound. ShowSounds is used to force the display of captions when sounds or speech are played.

The Display tab sets the display to a high-contrast color scheme to improve reading. The options include black on white, white on black, or any defined color scheme (through the Display applet's Appearance tab). This tab is also used to set the cursor blink rate and width.

The Mouse tab is used to enable numeric pad control of the mouse cursor, called MouseKeys. When enabled, the arrows on the numeric keypad control the direction of mouse cursor movement. The Settings button opens a window for additional configuration

settings, including speed and acceleration of the pointer, configuring the MouseKeys shortcut, and whether or not to use MouseKeys when NumLock is on or off.

The General tab is used to set the following controls:

- Disable or turn off accessibility options after the system is idle a specified length of time
- Display warning when enabling accessibility options
- Play a sound when turning a feature on or off
- Enable support for serial-connected key devices
- Apply all settings to logon desktop and/or to new users

To configure Accessibility Options, enable or disable each offered feature on the various tabs and fine tune these features by selecting the optional settings that offer the most help interacting with the system. Troubleshooting Accessibility Options is handled in the same manner as the initial configuration. Walk through the tabs and the configuration settings of each feature to make sure the desired settings are selected. If the Accessibility Option involves a device such as a special keyboard, mouse, etc., always check the driver for that device and contact the vendor for additional troubleshooting tips. Its possible for a problem to exist with the I/O device and not with the native Accessibility Options of Windows XP.

Add Hardware

Installing hardware under Windows XP is fairly straightforward. Upon bootup, the system polls the entire computer for new devices. If any are found, Windows XP attempts to identify them. This is successful for most **Plug and Play (PnP)** devices and some non–Plug and Play devices. Windows XP installs **drivers** automatically or prompts you for an alternate source path for drivers. If new hardware is not detected, the Add Hardware Wizard can be used to install vendor-supplied drivers manually. The Add Hardware applet is actually an informative, easy-to-use Wizard and is used to add a new device or troubleshoot a device that is not functioning properly.

Windows veterans may recall that this applet was called Add or Remove Hardware in Windows 2000. Its name and functions have changed in Windows XP. Removing or disabling a hardware device is now the sole domain of the Device Manager. It's part of the System applet, but is also accessible from the properties of the Hardware tab in My Computer, and on the Hardware tab through Device Manager in the System applet.

When adding new hardware, you should always begin by installing the device physically. Then boot the computer and wait a few moments to see if Windows XP detects it. If not, look for a vendor-provided installation utility. Only after PnP fails and you confirm that there is no vendor-supplied installation utility should you use the Add Hardware applet to install the device drivers for the new device. The Wizard itself is easy to follow without additional instructions.

Use the Add Hardware Wizard to install DVD players, CD players, tape devices, scanners, modems, network interface cards, multimedia devices, video devices, smart card readers, cameras, IrDA (Infrared Data Association) devices, wireless devices, Universal Serial Bus (USB) devices, and any other hand-held or desktop device or peripheral. As previously mentioned, Windows XP often detects new hardware components automatically (through support for Plug and Play) and attempts to install drivers for them. However, when devices are not automatically detected or the drivers fail to install, you can use the Add Hardware applet to install the device drivers. Always check with the vendor for the latest device drivers.

Once a device is installed, it can be configured and managed through Device Manager. This tool is accessed from the Start menu (Start | Control Panel | Administrative Tools | Computer Management). Use Device Manager to alter device settings, update drivers, add or remove a device within a hardware profile, and verify device functionality. See the "Device Manager" section later in this chapter for more information on configuring and managing devices with the Device Manager. Troubleshooting any device is a matter of verifying that the proper driver is installed and that the correct settings for the device are made. This information can be verified through Device Manager. Furthermore, the Device Manager can be used to update, replace, or remove drivers for installed devices. This is accomplished using the Uninstall or Update buttons on the Drivers tab of a device's Properties dialog box from the Device Manager.

As for troubleshooting, this Wizard really only offers one option—reinstalling the device driver. If you want to explore other troubleshooting options, look to the Device Manager.

Add or Remove Programs

Add or Remove Programs is actually three tools in one. The first tool, Change or Remove Programs, can be used to change or remove installed applications (see Figure 3-4). In this mode, it displays installed applications, their drive space usage, and how often the application is actually used. This mode also allows you to change or remove the application, but only if the application's set-up routine offers a partial or optional set-up method. Applications will appear only if they comply with the Windows application programming interface (API) for installation and properly register themselves during installation. If you suspect an application does not meet these requirements, you might want to initiate the installation from the Add New Programs tool.

The second tool, Add New Programs, (see Figure 3-5) is used to install new applications from a vendor-supplied distribution floppy or CD, from the Microsoft Update site, or over a network through IntelliMirror and Windows Installer. The third tool is the Add/Remove Windows Components Wizard (see Figure 3-6).
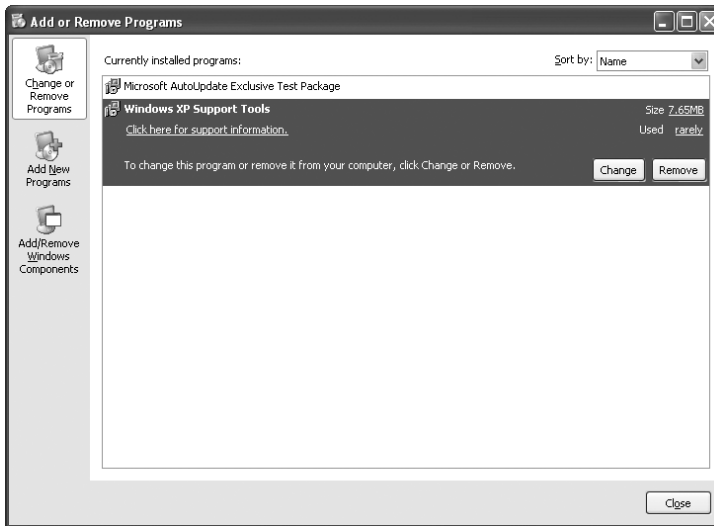
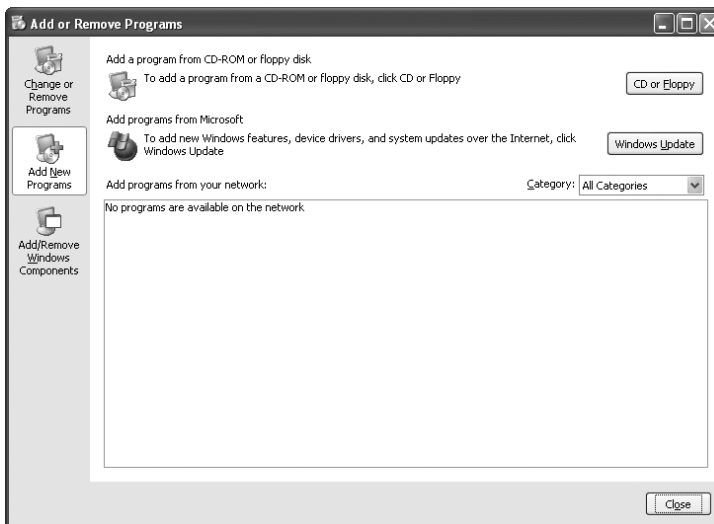**Figure 3-4**   The Add or Remove Program applet's Change or Remove Programs

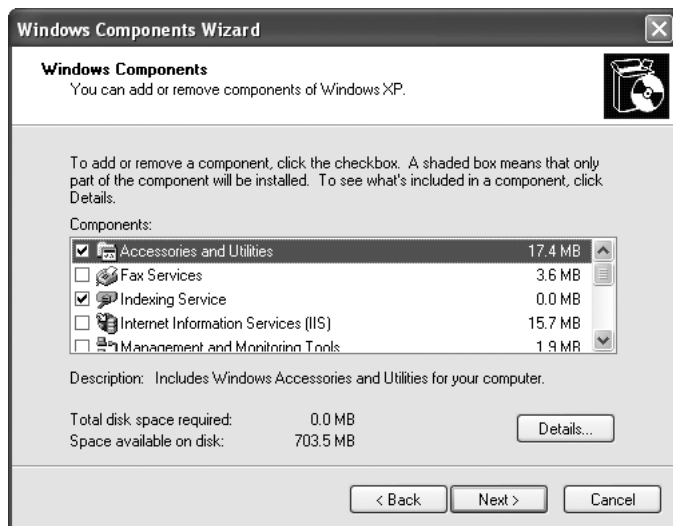**Figure 3-5**   The Add or Remove Program applet's Add New Programs

Figure 3-6   The Add or Remove Program applet's Add/Remove Windows Components

Administrative Tools

The Administrative Tools applet in the Control Panel is actually a folder pointing to the same place as the Administrative Tools item in the Start menu (which, by default, is not displayed on Windows XP Professional). The contents of Administrative Tools are discussed briefly later in this chapter and in relevant chapters later in this book.

Date and Time

The Date and Time applet is used to set the calendar date, clock time, and time zone for the system. On the Date & Time tab, you can set the month from a pull-down list, the year with scroll buttons, and select the day from the displayed month calendar. Time is adjusted by highlighting the hour, minute, second, AM/PM, and either using the scroll buttons or typing in a new value. When you set the time, the clock is set directly in the system's BIOS. The Time Zone tab displays a world map and a pull-down list to select time zones. Time zone information is stored internally as either a negative or a positive offset to Greenwich Mean Time (GMT). The Time Zone tab also supports automatic updates for daylight savings time and normal time, in those areas where such seasonal time changes occur.

On non-domain member Windows XP systems, a third tab appears within this applet. The Internet Time tab allows you to define a time server on the Internet for synchronizing the local clock. This tab appears only on stand-alone or workgroup systems, because domain members are automatically synchronized with their domain controllers.

3

Display

The Display applet is used to choose from a wide range of interface changes and preference settings. The Display applet can also be accessed by right-clicking over an empty area of the Desktop and selecting the Properties command from the resulting pop-up menu. There are five tabs in this applet. The Themes tab is used to select the overall visual styling of the user interface. The new colorful 3D interface is called Windows XP. The gray-based stylings of Windows XP are called Windows Classic. Other interface schemes can be downloaded, or you can create your own by modifying the other four tabs of the Display applet and saving your settings. The Desktop tab is used to select the wallpaper graphic and center, tile, or stretch the image. You can also customize the desktop on the Web tab by selecting desktop icons to display (My Documents, My Computer, My Network Places, and Internet Explorer), change desktop icons, enable the Desktop Cleanup Wizard (see Chapter 14, "Windows XP Professional Fault Tolerance") to execute every 60 days, and define Web elements to display on the desktop. The Screen Saver tab is used to set the screen saver, define the wait period before launching the screen saver, and to set the energy-saving features of the monitor (this links to the Power Options applet, through which all power features are configured). The Appearance tab is used to set window and button scheme, color scheme, and font size. Various display Effects (such as ClearType) and Advanced settings (such as individual display element color changes) also can be configured. ClearType is a new method of displaying fonts on LCD displays to produce a more readable text. The Settings tab is used to set the screen resolution and color quality. There are also buttons to aid in troubleshooting and setting adapter- or monitor-specific settings.

Windows XP supports Dualview, which is the capability to use multiple display devices. Configured from the Display applet's Settings tab, Dualview allows a notebook to display the desktop on both the local LCD panel and an external monitor. This also allows multiple monitors to be used simultaneously on desktop systems. If multiple monitors are installed on the system, you can manage them from this applet.

Folder Options

The Folder Options applet accesses the same configuration interface as the Tools|Folder Options command from Windows Explorer and My Computer. The four tabs of this applet are used to set the functional and visual parameters of the folders on the system. The General tab is used to enable/disable the display of common tasks in folders, to open a folder in a new or current window, and to choose whether a single- or double-click opens an item. The View tab is used to set advanced settings, such as show hidden files, hide file extensions, and use simple file sharing. The File Types tab is used to define or associate file extensions with applications. The Offline Files tab is used to enable offline network browsing by caching resources locally. See Chapter 4, "Managing Windows XP File Systems and Storage" for more details on this applet and its uses.

Fonts

The Fonts applet lists all currently installed fonts used by the Windows XP system; additional fonts can be added and unused fonts can be removed. Double-clicking on a font reveals a sample window displaying details about the font and several sized examples of it (see Figure 3-7).
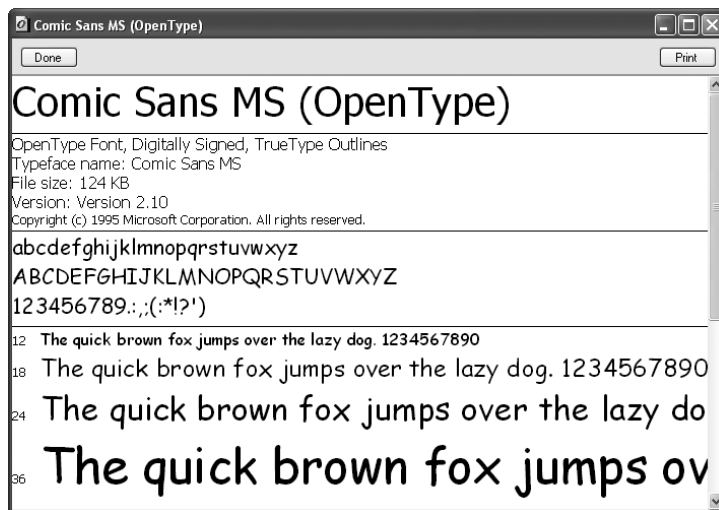

Figure 3-7   A font sample display window

Game Controllers

The Game Controllers applet is used to install and configure the operation of joysticks and other specialized gaming controls that can be attached to sound cards or serial ports. This interface offers access to device-specific properties and troubleshooting aid.

Internet Options

The Internet Options applet is used to define settings for Internet Explorer and general Internet access. This applet is discussed in Chapter 8, "Internetworking with Remote Access Service (RAS)."

Keyboard and Mouse

The Keyboard applet is used to modify keyboard functions. Settings include the Repeat delay, Repeat rate, and Cursor blink rate. The Mouse applet is used to modify mouse settings, including switching functions of left and right buttons, double-click speed, the graphics used for pointers, how the pointer moves (speed and acceleration) and appears (mouse trails or no mouse trails), wheel scrolling, and snapping to objects.

Network Connections

The Network Connections applet is used to manage all network connections of a Windows XP system. This includes local area network links as well as RAS and WAN links. This applet is discussed in Chapter 7, "Networking," and Chapter 8, "Internetworking with Remote Access Service (RAS)."

Phone and Modem Options

The Phone and Modem Options applet is used to define dialing locations, install and configure modems, and configure Remote Access Service (RAS) and Telephony API (TAPI) related drivers and services. This applet is covered in detail in Chapter 8.

Power Options

The Power Options applet is used to set the system's power–saving features. Several power schemes (see Figure 3-8) are predefined, such as Home/Office Desk, Portable/Laptop, Presentation, Always On, Minimal Power Management, and Max Battery. Each of these schemes is designed with either power or use in mind. You can employ a predefined scheme or create your own. The two primary settings are Turn off monitor and Turn off hard drives after a specified length of time. Other advanced controls include displaying the Power Management icon in the icon tray, enabling hibernation, enabling Advanced Power Management support, and configuring an uninterruptible power supply (UPS).
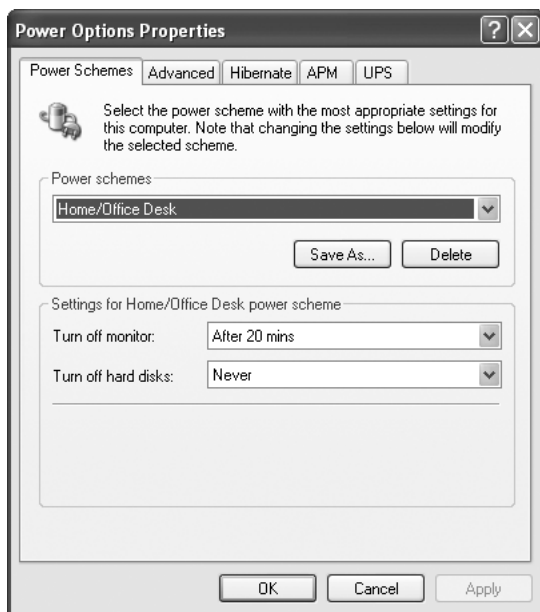

Figure 3-8　The Power Options applet, Power Schemes tab

Windows XP supports both Advanced Configuration and Power Interface (ACPI) and Advanced Power Options (APM) standards for power management. These standards extend battery life by reducing the power drain caused by the system. You'll find one or both of these options on most notebooks and many desktop systems. The Power Options applet includes a tab for one or both of these power management standards if they are found on your system. In most cases, they offer only basic controls, such as enabling or disabling the support as a whole.

Printers and Faxes

The Printers and Faxes applet is used to install, share, and configure many types of output devices. This applet is used not just for physical print devices, but also for specialized printers such as film printers, slide printers, and faxes. Once a printer is in use, this applet also grants access to the print queue for management purposes. This applet is covered in detail in Chapter 9, "Printing and Faxing."

Regional and Language Options

The Regional Options tab of the Regional and Language Options applet (see Figure 3-9) is used to define location-specific uses or requirements for numbers, currency, time, dates, and more. You can select a predefined regional scheme based on language or country, then define or customize specifics.

You use the Languages tab to configure the default input language to use for text entry, as well as keyboard settings. Through the Details button you can configure the default input language, the installed languages, and whether to use the language bar. The language bar is an always-on-top pull-down selector that enables quick switching between one input language and another. You can also define hot key sequences to switch between language options. On the Languages tab, you can select the install the files necessary to support complex script and right-to-left languages (such as Thai) or the files necessary to support East Asian languages (such as Japanese).

The Advanced tab allows you to configure language support for non-Unicode programs and select Code page conversion tables; you can also apply these settings to the current user account and the default user profile.

To enable and configure multiple language support, you must decide whether you want only the ability to read and write documents in multiple languages or if you need multiple input locales. An **input locale** is a combination language and keyboard layout used to define how data is entered into the computer. To enable multiple languages for documents, click the Details button on the Languages tab of the Regional and Language Options dialog box. This opens the Text Services and Input Languages dialog box where you can add other languages to your system. You can also click the Key Settings button to define shortcut key sequences that can be used to switch between languages. Once multiple languages are defined, you can also switch between them using the locale indicator which appears in the icon tray of the taskbar.
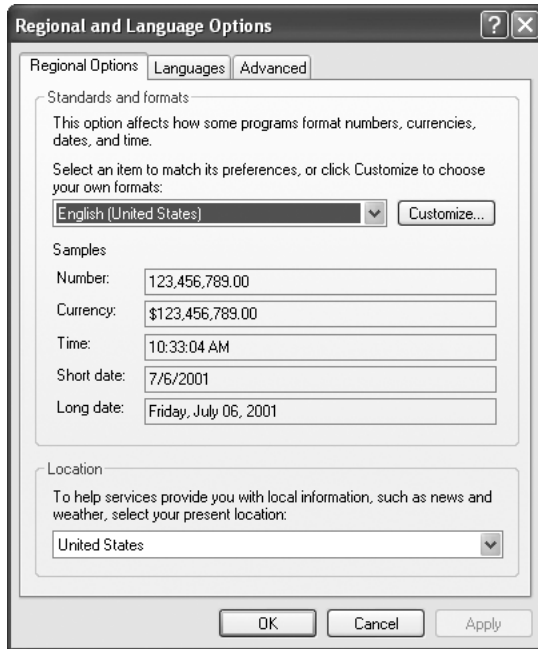
Figure 3-9   The Regional and Language Options applet, Regional Options tab

Scanners and Cameras

The Scanners and Cameras applet is used to install drivers and configure digital cameras and optical scanners. Once installed, these devices can be used with graphics and imaging software to create digital images of real-life or printed materials.

Scheduled Tasks

The **Scheduled Tasks** applet is used to automate task launching. Tasks can be scheduled to run at a specific time, repeat on intervals, at startup, at logon, or when idle. Tasks can launch within the security context of a specific user account. The Add Scheduled Task Wizard, which appears in the Scheduled Tasks folder, walks you step-by-step through the scheduling process, making scheduling as convenient as possible. Once a task is defined, you can edit its scheduled properties by right-clicking over the item and selecting Properties from the pop-up menu.

Scheduled tasks can be moved from system to system. This allows you to define administrative actions or batch files on a single computer, then place them on client systems from a central location.

To troubleshoot the Task Scheduler, you must verify the settings of each defined task. The most common cause of a task not running when expected is an incorrect time or date setting. You should also check the path for the tool, script, or program to be

launched, as well as any advanced settings that deal with idle time and repeat executions. You should always double-check your work to eliminate programming errors when scheduling tasks.

Sounds and Audio Devices

The Sounds and Audio Devices applet is used to customize the sound scheme (system events that cause sounds), set master volume, configure speakers, set audio device preferences, and configure or troubleshoot multimedia devices.

Speech

Windows XP includes a text-to-speech capability that reads document text. The voice is not perfect, but it is understandable. This applet configures the text-to-speech functions for applications written to Microsoft's Speech API (SAPI). Such applications will offer an additional Language tool bar, from which you can enable text-to-speech conversion and initiate the reading of the entire document or selected areas of text. This applet controls only SAPI-enabled applications and is distinct from the Narrator Accessibility Accessory (for more information, read the "Text to Speech" overview available from the Microsoft Help and Support Center for Windows XP).

System

The System applet is used to configure or control many system-level and core operational functions of Windows XP; it has seven tabs. The General tab displays system version, registered user, and basic computer information. The Computer Name tab (see Figure 3-10) is used to join a domain/workgroup and change the computer name. The Hardware tab is used to access the Add Hardware Wizard, enable/disable driver signing requirements, access the Device Manager, and define **hardware profiles**. The Advanced tab is used to access controls for performance settings (set optimization for visual effects, processor scheduling, memory usage, and **virtual memory**; see Chapter 10, "Performance Tuning"), user profiles (see Chapter 5, "Users, Groups, Profiles, and Policies"), startup and recovery (see Figure 3-16 later in this chapter), environmental variables, and error reporting. The System Restore tab controls the amount of disk space to use for system restoration (see Chapter 14). The Automatic Updates tab manages how Windows Update downloadable packages are handled (see Chapter 14). The Remote tab enables/disables and configures Remote Assistance and Remote Desktop (see Chapter 7). The following sections discuss additional configuration options available in this applet.
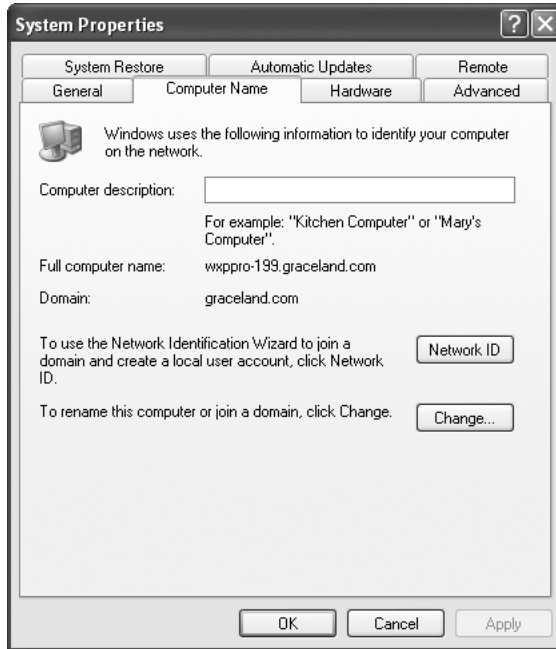
Figure 3-10   The System applet, Computer Name tab

Driver Signing

Driver signing is used to identify drivers that have passed the Microsoft Windows Hardware Quality Labs evaluation and tests. The configuration of driver signing through the System applet warns users when a non-signed driver is being installed. Clicking the Driver Signing button on the Hardware tab of the System applet reveals the Driver Signing Options dialog box, which presents the following three options:

- *Ignore*—Install the software anyway and don't ask for my approval.

- *Warn*—Prompt me each time to choose an action.

- *Block*—Never install unsigned driver software.

Configuring driver signing involves nothing more than selecting one of these three options. If you are an administrator, you are offered an additional checkbox, "Make this action the system default." Checking this box standardizes the driver signing settings for all users. The only method of troubleshooting driver signing is to return to this dialog box and ensure the desired option is selected.

The heart of the driver signing restriction mechanism is the File Signature Verification tool. This tool is used automatically by the system to verify whether software is signed at the time of installation. But you can take advantage of this tool for other purposes. This tool can be launched from the Help and Support Center or the sigverif.exec file

can be executed from the Start|Run command or a command prompt. Clicking Start on this tool launches a system-wide check for any unsigned system files. To test the signing of any other file, click the Advanced button, then set the tool to search for only system files, any file (*.*), or specific file types (such *.dll or *.exe) for unsigned files. You can also search within the default main \WINDOWS folder or any folder on the system with or without including their subfolders. The results of a File Signature Verification scan is recorded to a log file—sigverif.txt—by default.

Device Manager

Once a device is installed, you can verify that it is working properly through the Device Manager (see Figure 3-11). You can access this tool by clicking the Device Manager button on the Hardware tab of the System applet. The Device Manager lists all installed and known devices and indicates their status. (Note: You can also reach the Device Manager through the Computer Management administration tool by selecting Device Manager from the System Tools console tree.) A yellow exclamation point or a stop sign over a device's icon indicates problems or conflicts.
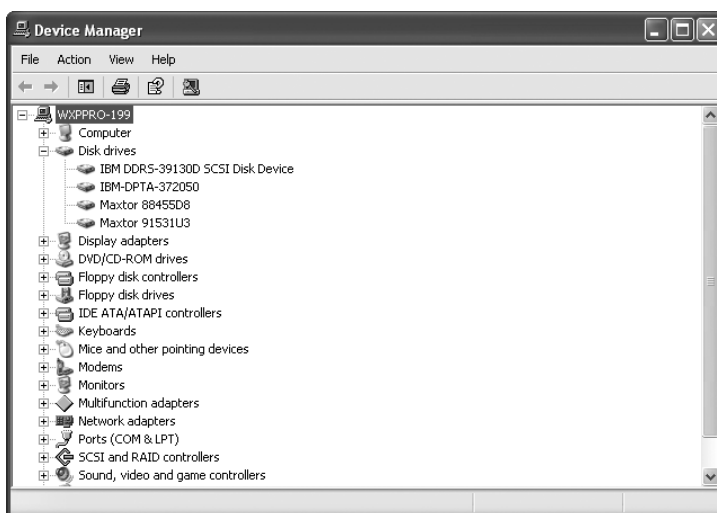

Figure 3-11 The Device Manager

By double-clicking a device, you open that device's Properties dialog box. By default, the General tab (see Figure 3-12) is displayed first. On this tab, you can access the type, manufacturer, and location settings, view the device's status, and enable or disable the device. Additionally, you can click the Troubleshoot button to access troubleshooting recommendations from the Windows XP Help and Support Center. The Driver tab (see Figure 3-13) enables you to change driver settings or install/upgrade device-related drivers. In the example shown in Figure 3-14, the Resources tab displays the device's resource settings and shows whether there are other devices in the system that have conflicting settings.

Figure 3-12   A device's Properties dialog box, General tab
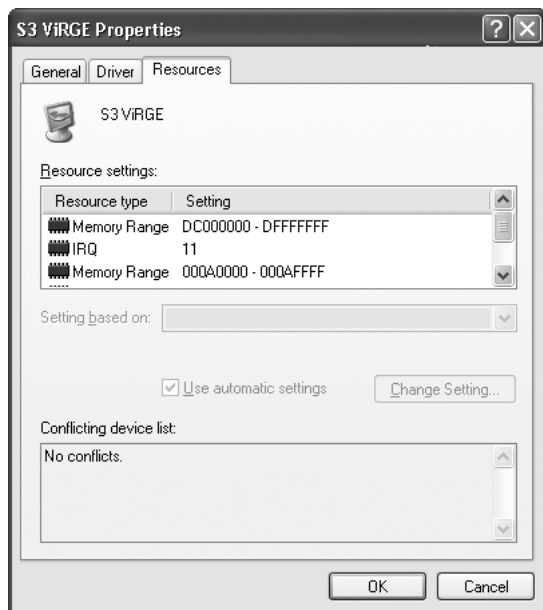

Figure 3-13   A device's Properties dialog box, Driver tab

Figure 3-14   A device's Properties dialog box, Resources tab

> **Note**
> The tabs that appear in a device's Properties page vary depending on the type of device. For example, disk drives contain a tab for volume information; other devices have a tab for device-specific properties or resources.

If a new device is not a Plug and Play device, there is a good possibility that its current settings will conflict with existing hardware. If you want to add a device that isn't Plug and Play, it's always a good idea to find out what hardware resources are available. You can use this information either to preset the device (if jumpers and dip switches are present) or to configure the driver. The four main areas of hardware resource conflict are:

- *IRQ*—The interrupt request level that is used to halt CPU operation in favor of the device. Windows XP supports 16 interrupts, namely **IRQ** 0 to 15.

- *I/O port*—The section of memory used by the hardware to communicate with the operating system. When an IRQ is used, the system checks the **I/O port** memory area for additional information about what function is needed by the device. The I/O port is represented by a hexadecimal number.

- *DMA*—A channel used by a hardware device to access memory directly, i.e., bypassing the CPU. Windows XP supports eight **DMA** channels, numbered 0 to 7.

■ *Memory*—The area of physical memory hosted by the motherboard that is used by a device to perform its operations. These memory areas are reserved and cannot be used by any other device or process on the system.

You can check the current state of these resources through the Device Manager by selecting Resources by type or Resources by connection from the View menu. Using the data presented, you can configure new hardware so that it does not conflict with any existing devices or drivers. Once a driver is installed, you might be able to alter its resource requirements through the device's Properties dialog box's Resource tab. To access this configuration area:

1. Open the System applet from the Control Panel (**Start|Control Panel|System**).

2. Select the **Hardware** tab.

3. Click the **Device Manager** button.

4. Locate the device in the list and select it.

5. Right-click the device, select **Properties** from the pop-up menu.

6. Click the **Resources** tab.

7. Click **Set Configuration Manually if the Resource Settings are not displayed**.

Hardware Profiles

A **hardware profile** is similar to a user profile (see Chapter 5) in that it is a collection of custom settings specific to a particular situation. Just as user profiles are specific to the user account used to log into the system, hardware profiles are specific to the conglomeration of hardware currently comprising the computer (including both internal and external devices and network connections). A hardware profile is most often used on portable computers for which hardware configurations change often. Typically a hardware profile is used to enable or disable network support, modem, external monitors, and docking stations. However, hardware profiles also can be employed whenever there is a hardware change between boot-ups, such as with removable media, PC Cards, disconnected peripherals, etc.

In most cases, hardware profiles are not strictly required on Plug and Play-compatible systems, but most users find them more convenient than installing and removing drivers each time the system boots into a new hardware configuration. Basically, a hardware profile is a list of all installed devices with selections as to which devices are not enabled for a particular profile. For example, on a notebook computer that is away from the office, a hardware profile could be used to disable networking hardware.

On a system with multiple defined hardware profiles, the system attempts to select the hardware profile that matches the discovered hardware (Windows XP performs a hardware system check during initial boot-up). If an exact match is not found, you will be

prompted as to which hardware profile to use. Furthermore, you can select one profile as the default profile. When the system fails to locate a profile that matches existing hard-ware and the defined timeout period expires, the default hardware profile will be used. (This is a configurable option.)

Hardware profiles are created through the Hardware Profiles dialog box. To access this dialog box, click the Hardware Profiles button on the Hardware tab of the System applet. Initially, there is only one hardware profile present, the current configuration, with all known devices installed and enabled (assuming you've taken time to troubleshoot any conflicts). To create new profiles, follow this simple procedure:

1. Select an existing hardware profile.

2. Click the **Copy** button.

3. Provide a name for the new profile, then click **OK**.

4. Reboot the computer.

5. While rebooting, select the new hardware profile when prompted.

6. Open the **Device Manager** (System applet, Hardware tab, Device Manager button).

7. For each device you want to remove from this hardware profile, open its Properties (right-click over the device and select **Properties** from the pop-up menu).

8. On the General tab of each device's Properties (refer to Figure 3-12), change the Device usage pull-down list to **Do not use this device (disable)**.

9. For each device you want to restore to this hardware profile, open its Properties (right-click over the device and select **Properties** from the pop-up menu).

10. On the General tab of each device's Properties, change the Device usage pull-down list to **Use this device (enable)**.

11. When you've made all the desired changes, close the Device Manager.

Once you have defined two or more hardware profiles, you need to make a couple of setting changes to the Hardware Profiles dialog box. First, select which profile should be the default by using the up and down arrows to move the most often used profile to the top of the list. Second, select whether to wait indefinitely for a hardware profile selec-tion or to use the default if no selection is made after a specified time period. This set-ting applies only when the system cannot automatically determine which profile to use based on discovered hardware.

Startup and Recovery

The Startup and Recovery Options dialog box (see Figure 3-15) allows you to define system startup parameters and specify how STOP errors are handled. You access this dialog box by clicking the Settings button under the Startup and Recovery heading on the Advanced tab of the System applet. Startup controls are found the region of this window labeled System startup and are used to set the default operating system and selection timer for the boot menu. The default is 30 seconds, but is often reduced to 5 or 10 seconds to speed system startup (an alternative is to edit the boot.ini file's timeout= value to 5 or 10, which has the same effect).
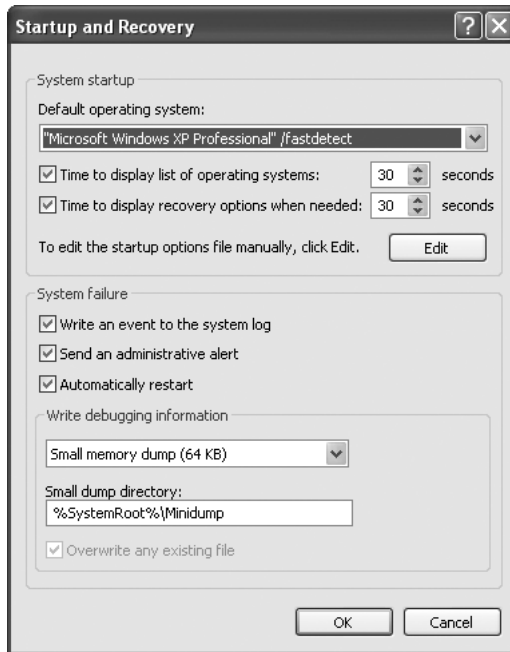
Figure 3-15   The Startup and Recovery dialog box

The options in the area labeled System failure in this window are a bit more esoteric. They provide special controls to deal with an outright Windows XP system crash. When the whole system halts due to a STOP error, the entire contents of the computer's virtual memory are dumped to a .DMP file (which resides in the *%systemroot%*\minidump or \windows\minidump folder, by default). Although this dump file is of little use to most users and can usually be discarded, the information it contains can be invaluable when debugging system or application problems. There are also options for writing an event to the system log, sending administrative alerts, and rebooting the system automatically.

Environmental Variables

The Environment Variables dialog box is accessed by clicking the Environment Variables button on the Advanced tab of the System applet. The top pane of the tab controls settings for system-wide environment variables; the bottom pane controls local user environment variables. Only a local user who is currently logged on can set variables on this tab. These variables are used to control how Windows XP operates, particularly how older 16-bit Windows or DOS programs behave within Virtual DOS Machines (VDMs), within which they must run in the Windows XP environment.

Error Reporting

Microsoft has provided Windows XP the ability to report errors regarding the OS and installed applications. Whenever a system or application error occurs and Internet access is available, an anonymous error report is sent to Microsoft. Error reporting is enabled by default. You can select to report OS and/or program errors. You can even select which programs to report. You reach this tool by clicking the Error Reporting button on the Advanced tab of the System applet.

> This feature has no immediate benefits or drawbacks for you, but it can help Microsoft develop fixes and patches for Windows XP and possibly improve its future OS products.

Taskbar and Start Menu

The Taskbar and Start Menu applet is the same properties dialog box accessed by right-clicking over the Start button and selecting the Properties command from the pop-up menu. The Taskbar tab controls taskbar appearance (lock, auto-hide, keep on top, group similar, and show quick launch) and notification area settings (show clock, hide inactive Notification Area icons). The Customize button allows you to define whether specific system tray icons disappear when inactive, remain hidden, or always display. The Start Menu tab is used to select from the Windows XP new stylized Start menu or the Classic Start menu (from Windows 2000). The Customize button for each of these options is used to configure additional settings, such as large/small icons, number of recently accessed programs to display, Internet and e-mail shortcuts, and Start menu items such as link, menu, or hidden.

User Accounts

The User Accounts applet is used to create and manage local user accounts, passwords, and .NET passports, to access the Local Users and Groups tool (part of Computer Management from Administrative Tools), and to specify whether Ctrl+Alt+Delete is required to log on. This tool is discussed in Chapter 5.

MICROSOFT MANAGEMENT CONSOLE OVERVIEW

The **Microsoft Management Console (MMC)** is a graphical interface shell. The MMC provides a structured environment for consoles, **snap-ins**, and extensions that offer controls over services and objects. A **console** is like a document window; one or more consoles can be loaded into the MMC. Each console can host one or more snap-ins. A snap-in is a component that adds control mechanisms to the MMC console for a specific service or object. Each snap-in can support one or more extensions (i.e., specialized tools). Each snap-in (and any of its related extensions) is designed to manipulate a specific service or type of object in the Windows XP local, remote, domain, or Active Directory environment. For example, the Users and Groups snap-in is used to manage local users and groups. The MMC does not provide any management capabilities itself; it merely provides the interface mechanism and environment for system and object controls.

The MMC architecture was created to simplify administration of the Windows networking environment. Versions of the MMC are included with IIS 4.0 and other products deployed on Windows 98 and Windows NT. However, MMC was not fully realized until the final release of Windows 2000 and has been included as a core element of Windows XP.

The most beneficial feature of the MMC is its flexibility. The MMC provides a general-purpose framework that Microsoft has used to consolidate systems management facilities of all kinds, and that third parties often use to incorporate snap-ins for managing their tools as well. It provides a consistent interface for all management tools, thereby enhancing usability and shortening the learning curve when new snap-ins are added. Additionally, multiple snap-ins can be combined in a custom administration layout to suit each administrator's particular needs or responsibilities. No other management tool offers such a wide range of customization.

MMC settings and layout can be stored as an .msc file, allowing your custom configurations of snap-ins and extensions to be re-used later on the same computer or transferred to other systems. The .msc file contains all of the windows currently open in the MMC. These files can be moved from system to system with ease. In addition, you can assign, grant, or restrict access to the .msc files (and the controls they offer) through system policies based on user, group, or computer. Thus, you can selectively and securely assign administrative tasks to non-administrative users.

The MMC Console

The MMC console itself is a fairly straightforward interface. To open the MMC without a snap-in, just execute MMC from the Start|Run command. There are really only two parts to the main MMC console: the main menu bar and the console window display area. The main menu bar contains the Console, Window, and Help drop-down menus and a movable mini-icon bar with one-click shortcuts to common activities

(New, Open, Save, and New Windows). The console display area functions just like any other Windows application that supports multiple document windows.

Consoles have three important parts (see Figure 3-16): console menu bar, console tree, and details pane. The console menu bar contains the Action and View menus, the contents of which change based on the snap-ins and extensions present and active in the console. The console menu bar also contains a mini-icon toolbar of one-click shortcuts to common functions found in the Action and View menus. The console tree is the left pane or division of the console display area, where the loaded snap-ins and extensions are listed, along with context selections (such as computers, domains, users, divisions, etc.). The details pane is the right pane or division of the console display area, where the details associated with the active item from the console tree are displayed.
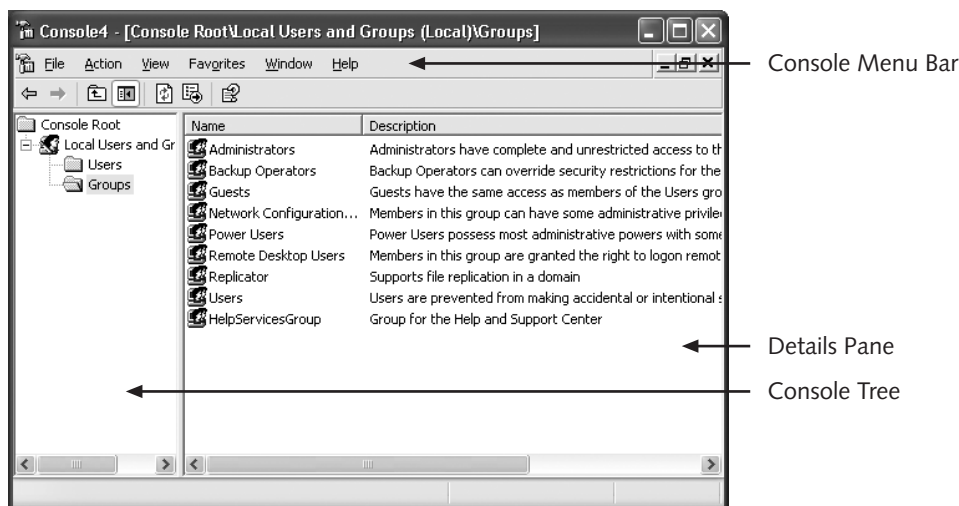

Figure 3-16   The parts of the Microsoft Management Console

Snap-Ins

Snap-ins are the components added into a console that actually perform the actions on services or objects. There are two types of snap-ins: stand-alone snap-ins and extension snap-ins. Stand-alone snap-ins are typically referred to simply as snap-ins. They provide the main functions for system administration and control; Windows XP Professional is equipped with a set of snap-ins. The extension snap-ins add functionality to a stand-alone snap-in. A single extension can be used on any snap-in with similar service/object context. Multiple extensions can be present for a single snap-in. For example, the Computer Management snap-in can be extended by the Event Viewer and Device Manager extensions.

Once you've added and configured a console's snap-ins (see later this chapter), you can save the console to an .msc file in one of four formats. The first and default format is

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Author Mode, which allows users to add and remove snap-ins, create new windows, view the entire console tree, and save new versions of the console. The other three formats are all **User Mode**. Intended for end-users, these formats prevent adding or removing snap-ins or re-saving the console file. The three types of User Mode formats are: Full Access; Delegated Access, Multiple Windows; and Delegated Access, Single Window. Full Access allows users to create new windows and view the entire console tree. The Delegated Access formats prevent users from viewing portions of the console tree. The Multiple Windows version allow users to create new windows but not close existing windows, whereas the Single Window allows viewing of only one window. The format of the .msc file is changed through the Console|Options command.

USING THE MMC

Windows XP is equipped with several preconfigured consoles designed to offer administrative control over your system. These tools are found mainly in Administrative Tools (see following section), a folder within the Control Panel, though it also can appear on the Start menu if configured through the Taskbar and Start Menu applet.

You can utilize all of the snap-ins used to create the Administrative Tools to create your own custom consoles. In addition to these predefined consoles, installing other services or applications can add other predefined consoles for custom or unique console controls.

Creating custom consoles is simple. Just launch the MMC through the Start|Run command. Then use the Add or Remove Snap-In command from the Console menu to open the Add or Remove Snap-in dialog box. Click on the Add button to view the Add Standalone Snap-in dialog box (refer to Figure 3-2 earlier in this chapter). Select the snap-in, and click Add. If the snap-in supports both local and remote operation, you'll be prompted to indicate whether to pull data locally or from a remote system.

Some snap-ins can serve as stand-alone snap-ins or as extensions to another snap-in. For example, Device Manager and Event Viewer can be configured to stand alone or as extensions of Computer Management. Once you've added one or more snap-ins (i.e., they appear in the list on the Add or Remove Snap-In dialog box), you can add or modify extensions by selecting the Extension tab.

ADMINISTRATIVE TOOLS

The Administrative Tools are a collection of system configuration utilities that Microsoft deemed powerful and dangerous enough to separate from the Control Panel applets. You must have administrative privileges to use the seven Administrative Tools on Windows XP Professional: Component Services, Data Sources (ODBC), Event Viewer, Local Security Policy, Performance, Services, and Computer Management.

Component Services is a tool used mainly by application developers. However, this tool can also be used by system administrators who need to custom-configure a system for a specific application. This tool is used to administer COM and COM+ applications. If you want to explore the uses of this tool, consult the online Help material and the *Microsoft Windows .NET Server Resource Kit*.

Data Sources (ODBC) is a tool used configure the OS to interact with various database management systems, such as SQL Server or FoxPro. This tool is often used in applications designed for enterprise-wide or Web-based deployments; if your application can already access data from a SQL server, proper configuration of the ODBC Source Administrator will let it access data from a FoxPro database as well. To explore the uses of this tool, consult the online Help material and the *Microsoft Windows .NET Server Resource Kit*.

The Event Viewer is used to view system messages regarding the failure and/or success of various key occurrences within the Windows XP environment. Details of system errors, security issues, and application activities are recorded in the logs viewed through the Event Viewer. This tool is discussed in Chapter 10, "Performance Tuning."

Local Security Policy is used to configure local security settings for a system. It is similar to, but more specific than, a group policy for a domain, site, or OU. This tool is discussed on Chapter 6, "Windows XP Security and Access Controls."

The Performance item is used to access System Monitor and the Performance Logs and Alerts tool. This is discussed in Chapter 10, "Performance Tuning."

Services is used for stopping and starting services and configuring the startup parameters for services (such as whether or not to launch when the system starts, whether to employ a user account security context to launch the service, etc.). There is a Hands-on Project for using this tool in Chapter 15, "Troubleshooting Windows XP."

Computer Management (see Figure 3-17) is an MMC console that serves as a common troubleshooting and administration interface for several tools. The Computer Management console is divided into three sections: System Tools, Storage, and Services and Applications.
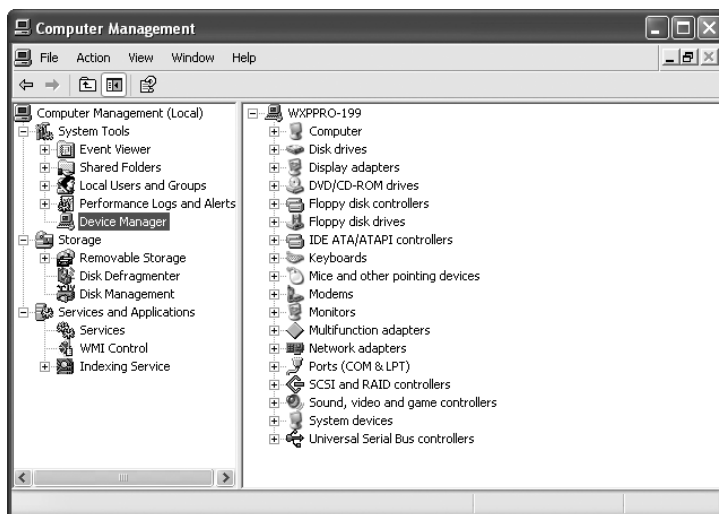
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Figure 3-17   Computer Management, with Device Manager selected

The System Tools section contains five tools:

- *Event Viewer*—Described earlier in this chapter. This tool is discussed in Chapter 10 and Chapter 15.

- *Shared Folders*—Used to view the shared folders on the local system. This interface shows hidden shares, current sessions, and open files. This tool also allows you to view and alter the share configuration settings of user limit, caching, and permissions.

- *Local Users and Groups*—Used to create and manage local user accounts and groups. Details on use, examples, and Hands-on Projects for this tool are found in Chapter 5.

- *Performance Logs and Alerts*—Another means to access the Performance monitoring tool of Windows XP. The use of this tool in troubleshooting is rather tedious and complex (see Chapter 10 for examples and Hands-on Projects involving this tool).

- *Device Manager*—Used to view and alter current hardware configurations of all existing devices. See the description of the Device Manager earlier in this chapter.

The Storage section of Computer Management has three tools for storage device administration. Details on use, examples, and Hands-on Projects for these tools are found in Chapter 4.

- *Removable Storage*—Used to manage removable media such as floppy disks, tapes, and Zip drives.

- *Disk Defragmenter*—Used to improve the layout of stored data on drives by reassembling fragmented files and aggregating unused space.

- *Disk Management*—Used to view and alter the partitioning and volume configuration of hard drives.

The Services and Applications section contains management controls for various installed and active services and applications. The actual contents of this section depend on what is installed on your system. Some of the common controls on a Windows XP Professional system include:

- *Indexing Service*—Used to define the corpus (collection of documents indexed for searching) for Indexing Service. For information on using this tool, consult the *Microsoft Windows .NET Server Resource Kit*.

- *WMI Control*—Used to configure Windows Management Instrumentation (WMI).

- *Services*—See the description of Services earlier in this chapter. This tool is discussed in Chapter 15.

PCMCIA OR PC CARDS

As a fully Plug and Play-compatible operating system, Windows XP includes support for **PCMCIA** or **PC Cards**. These are credit card-sized devices that plug into a slit port found on most notebooks and some desktop computers. The plug-in operation is very similar to inserting a cartridge into a game. Most computers that support PC Cards have two slots, allowing up to two additional devices to be added to the system. PC Cards can be just about any device, including memory expansions, SCSI cards, NICs, modems, or proprietary peripheral interfaces.

Card services are installed automatically when Windows XP is installed onto a HAL-supported notebook or portable computer (or a desktop computer with a PC Card slot device). Once installed, most of the tasks and processes required to manage and enable PC Card support are handled automatically by Windows XP. Unlike Windows NT and Windows 95/98, Windows XP does not have a PC Card (or PCMCIA) applet. Your only real control is through the Unplug or Eject Hardware icon in the Notification Area. Double-click this icon to instruct the system to stop using and release control of the PC Card device so it can be removed. In most cases, it is a good idea to use this tool to stop the driver of a particular device before unplugging it from the system. This helps prevent system errors and data loss by allowing the system to finish using the device, clear all related buffers, and disable the drivers and dependent services. Once a new card is reinserted, the system detects and enables it automatically.

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CHAPTER SUMMARY

❐ In this chapter, you learned about the various applets and tools found in the Control Panel and Administrative Tools. The Accessibility Options applet is used to configure special interface enhancements for the visual-, audio-, or movement-impaired user. The Add Hardware applet is used to install and troubleshoot devices. The Add or Remove Programs applet is used to change or remove applications, install new applications, or change installed Windows components. The Administrative Tools applet is used to access the administrative tools. The Date and Time applet is used to set calendar date, clock time, and time zone. The Display applet is used to config-ure the display interface features. The Folder Options applet is used to configure folder features. The Fonts applet is used to manage fonts. The Game Controllers applet is used to install and configure gaming devices. The Internet Options applet is used to configure Internet access for Internet Explorer. The Keyboard and Mouse applets are used to configure these two device types. The Network Connections applet is a link to the configuration interface for all network connections. The Phone and Modem Options applet is used to configure RAS and TAPI devices. The Power Options applet is used to configure power saving features. The Printers and Faxes applet is used to install and configure printers and faxes. The Regional and Language Options applet is used to set location-specific language items. The Scanners and Cameras applet is used to configure imaging devices. The Scheduled Tasks applet is used to automate tasks. The Sounds and Audio Devices applet is used to configure audio schemes. The Speech applet configures text-to-speech functionality. The System applet is used to configure several aspects of the operating system, including virtual memory, environmental variables, and system startup parameters. The Taskbar and Start Menu applet is used to configure how the taskbar and Start menu operate. The User Accounts applet is used to manage local users and groups.

❐ This chapter also discussed the Microsoft Management Console and the Administrative Tools. The Component Services utility configures the system for COM usage. The Data Sources (ODBC) utility configures interaction with database management systems. The Local Security Policy controls local security settings. The Services utility manages services. The Event Viewer is used to view the system's log files. The Performance item accesses the System Monitor and Performance Logs and Alerts utilities. Computer Management is a collective interface for several tools used for system management and troubleshooting. This chapter also discussed the processes of installing hardware, using hardware profiles, and dealing with PC Cards.

KEY TERMS

applet — A tool or utility found in the Control Panel that typically has a single focused purpose or function.

Author Mode — The condition of a console that allows users to add and remove snap-ins, create new windows, view the entire console tree, and save new versions of the console.

console — The collection of snap-ins and extensions saved as an .msc file loaded into the MMC that offers administrative controls.

Control Panel — The collection of tools and utilities (called applets) within Windows, where most system- and hardware-level installation and configuration take place.

device — A physical component, either internal or external to the computer, that is used to perform a specific function. Devices include hard drives, video cards, network interface cards, printers, etc.

DMA (Direct Memory Access) — A channel used by a hardware device to access memory directly, i.e., bypassing the CPU. Windows XP supports eight DMA channels, numbered 0 to 7.

driver — A software element that is used by an operating system to control a device. Drivers are usually device-specific.

hardware profile — A collection of custom device settings used on computers with changing physical components.

input locale — A combination language and keyboard layout used to define how data is entered into a computer.

I/O port — The section of memory used by the hardware to communicate with the operating system. When an IRQ is used, the system checks the I/O port memory area for additional information about what function is needed by the device. The I/O port is represented by a hexadecimal number.

IRQ (interrupt request) — The interrupt request level that is used to halt CPU operation in favor of the device. Windows supports 16 interrupts, namely IRQ 0 to 15.

Microsoft Management Console (MMC) — The standardized interface into which consoles, snap-ins, and extensions are loaded to perform administrative tasks.

PC Cards — The modern name of the PCMCIA technology. PC Cards are credit card-sized devices typically used to expand the functionality of notebook or portable computers.

PCMCIA — The older name for the technology now called PC Cards. PCMCIA stands for Personal Computer Memory Card International Association.

Plug and Play (PnP) — A technology that allows an operating system to inspect and identify a device, install the correct driver, and enable the device, all without user interaction. Plug and Play simplifies the adding and removing of hardware and can often offer on-the-fly reconfiguration of devices without rebooting.

Scheduled Tasks — The component of Windows XP used to automate the execution or launch of programs and batch files based on time and system conditions.

service — A software element used by the operating system to perform a function. Services include offering resources over the network, accessing resources over the network, print spooling, etc.

snap-in — A component that adds control mechanisms to a console for a specific service or object, thereby extending the functionality of that console (as with snap-ins for the MMC).

User Mode — The condition of a console that prevents adding or removing snap-ins or re-saving the console file.

virtual memory — The combination of physical RAM and pagefile space used by the operating system to enlarge usable memory for processes.

Wizard — A tool or utility that has an interactive step-by-step guide to walk you through a complex or detailed configuration process.

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REVIEW QUESTIONS

1. Which of the following tools is the primary interface through which most Windows XP administration tasks are performed?

   a. Control Panel

   b. Computer Management

   c. Scheduled Tasks

   d. My Computer

2. The MMC offers native administration controls without snap-ins. True or False?

3. In the context of the MMC, what are extensions used for? (Choose all that apply.)

   a. Alter the display of the MMC

   b. To restrict controls based on user accounts

   c. To add additional functionality to stand-alone snap-ins

   d. To allow remote administration of services and objects

4. The MMC can be used to manipulate services and objects on local and remote systems. True or False?

5. Which .msc mode allows users to create new windows but prevents them from viewing some parts of the console tree? (Choose all that apply.)

   a. Author Mode

   b. User Mode: Full Access

   c. User Mode: Delegated Access, Multiple Windows

   d. User Mode: Delegated Access, Single Window

6. Which of the following are tools found in the Administrative Tools section of the Control Panel? (Choose all that apply.)

   a. Computer Management

   b. My Computer

   c. Event Viewer

   d. Utility Manager

7. What is the best tool in Windows XP for automating a recurring task?

   a. AT

   b. CRON

   c. Scheduled Tasks

   d. Event Viewer

8. Which of the following can trigger the launch of an automated event? (Choose all that apply.)

   a. User logon

   b. System idle

   c. Exact time

   d. System startup

9. Automated tasks can be halted when the system switches to battery power. True or False?

10. Which applet is used to configure ToggleKeys and SoundSentry?

    a. Sound and Multimedia

    b. Keyboard

    c. Accessibility Options

    d. System

11. If you want to use the numeric keypad to control the mouse cursor movement, what applet must you open to configure this option?

    a. Sound and Multimedia

    b. Keyboard

    c. Accessibility Options

    d. System

12. The Add Hardware applet can be used to perform which of the following actions? (Choose all that apply.)

    a. Troubleshoot an existing device

    b. Disable a PC Card driver before it is removed

    c. Configure multiple display layout

    d. Install and uninstall drivers for new hardware already present in a Windows XP system

13. Plug and Play devices, although automatically detected by the operating system during bootup, will always require you to employ the Add Hardware applet to install the device driver. True or False?

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14. What applet should you use to add Windows components distributed on the Windows XP Professional CD?

   a. System

   b. Add or Remove Programs

   c. *Microsoft Windows .NET Server Resource Kit*

   d. Regional Settings

15. The Date/Time applet only changes the time as it is seen by Windows XP; the system's BIOS settings must still be changed through DOS. True or False?

16. What applet is used to switch the functions of the mouse buttons?

   a. Accessibility Options

   b. Regional Settings

   c. Mouse

   d. System

17. Home/Office Desk, Presentation, and Portable/Laptop are examples of pre-defined _____.

   a. Hardware profiles

   b. User profiles

   c. Power Options settings

   d. System profiles

18. Troubleshooting help for an audio card can be accessed through which applet? (Choose all that apply.)

   a. Device Manager

   b. System

   c. Sounds and Audio Devices

   d. Accessibility Options

19. What applet can be used to change domain or workgroup membership?

   a. System

   b. Add Hardware

   c. Accessibility Options

   d. Workgroup Settings

20. Once you install Windows XP, you must re-install the entire operating system to rename the computer. True or False?

21. When a STOP error occurs, what can the system do? (Choose all that apply.)

    a. Write an event to the system log

    b. Send an administrative alert

    c. Write a memory dump file

    d. Reboot the system

22. What tool is used to ensure that a newly installed device is functioning properly?

    a. System

    b. Add Hardware

    c. Device Manager

    d. Administrative Tools

23. Which of the following system resources may often find themselves in contention for non–Plug and Play devices? (Choose all that apply.)

    a. Paging file space

    b. I/O Port

    c. Priority CPU cycles

    d. IRQ

24. What convention or mechanism is used on Windows XP to manage changing hardware configurations smoothly across reboots?

    a. Plug and Play

    b. User Profiles

    c. Manually installing and removing drivers

    d. Hardware Profiles

25. A hardware profile can be chosen automatically by the system during boot-up. True or False?

HANDS-ON PROJECTS

Project 3-1

To create an MMC console for system management:

1. Type **mmc.exe** into the Open textbox in the **Start|Run** command.

2. Select **File|Add/Remove Snap-in**.

3. Click **Add**.

4. Locate and select **Computer Management** from the **Add Standalone Snap-in** dialog box.

5. Click **Add**.

6. Select **Local computer**.
7. Click **Finish**.
8. Click **Close**.
9. Select the **Extensions** tab.
10. Ensure the **Add all extensions** checkbox is selected.
11. Click **OK** to return to the MMC. Notice the Computer Management snap-in is listed in the console tree.
12. Maximize the console root window by double-clicking its title bar.
13. Select **File|Save As**.
14. Change to the directory where you want to store the console file.
15. Give the console file a name, such as **COMPMGT.MSC**. Click **Save**.
16. Select **File|Exit**.

Project 3-2

This hands-on project assumes the Control Panel is in Classic View.

To create an automated task:

1. Open the Control Panel (**Start|Control Panel**).
2. Open the **Scheduled Tasks** item (double-click on its icon).
3. Launch the Scheduled Tasks wizard by double-clicking **Add Scheduled Task**.
4. Click **Next**.
5. Select **Calculator** from the list.
6. Click **Next**.
7. Select **One time only**.
8. Click **Next**.
9. Set the time to **3 minutes** from the present.
10. Click **Next**.
11. If you want to launch the task with the context of another user account, provide the username and password; otherwise, click **Next**.
12. Click **Finish**.
13. Wait the remainder of the three minutes to see Calculator launch automatically.
14. Close the calculator application.

Project 3-3

This hands-on project assumes the Control Panel is in Classic View.

To add a Windows component:
1. Open the Control Panel (**Start**|**Control Panel**).
2. Open the **Add or Remove Programs** applet (double-click the applet's icon).
3. Select **Add or Remove Windows Components**.
4. The Windows Components Wizard displays the list of available components. Locate and select the **Other Network File and Print Services**. Click **Next**.
5. Click **Finish**.
6. Close the Add or Remove Programs applet by clicking **Close**.

Project 3-4

This hands-on project assumes the Control Panel is in Classic View.

To set the calendar date, clock time, and time zone for the system:
1. Open the Control Panel (**Start**|**Control Panel**).
2. Open the **Date and Time** applet (double-click on the applet's icon).
3. Use the pull-down list to select the correct month.
4. Use the scroll buttons to select the correct year.
5. Select the current date from the displayed month calendar.
6. Click the hours in the time field below the analog clock. Use the up and down arrow buttons to adjust the hour to the current time.
7. Select the minutes in the time field. Use the up and down arrow buttons to adjust the minutes to the current time.
8. Select the seconds in the time field. Use the up and down arrow buttons to adjust the seconds to the current time.
9. Select the AM/PM designation in the time field. Use the up and down arrow buttons to adjust the designation to the current time.
10. Select the **Time Zone** tab.
11. Use the pull-down list to select the time zone for your area.
12. Click **OK** to close the Date and Time applet.

Project 3-5

This hands-on project assumes the Control Panel is in Classic View.

To create a custom sound scheme:
1. Open the Control Panel (**Start|Control Panel**).
2. Open the **Sounds and Audio Devices** applet (double-click the applet's icon).
3. Select the **Sounds** tab.
4. Use the **Sound Scheme** pull-down list to select **Windows Default**.
5. If prompted to save the previous scheme, click **No**.
6. Select **Asterisk** from the list of **Program events**.
7. Use the **Sounds** pull-down list to select **(None)**.
8. Select **Exit Windows** from the list of Program Events.
9. Use the **Sounds** pull-down list to select **Windows Logoff Sound.wav**.
10. Click the **Save As** button.
11. Give the sound scheme a name, such as **Windows Example 1**. Click **OK**.
12. Click **OK** to close the Sounds and Audio Devices applet.
13. Save any work that may be open, and select **Start|Turn Off Computer**, then click the **Restart** button. Notice the sound that plays as Windows shuts down.

Project 3-6

This hands-on project assumes the Control Panel is in Classic View.

To configure Windows XP Professional for stand-alone home use:
1. Open the Control Panel (**Start|Control Panel**).
2. Open the **System** applet (double-click on the applet's icon).
3. Select the **Computer Name** tab.
4. Click the **Network ID** button.
5. On the **Network Identification Wizard**. Click **Next**.
6. Select **This computer is for home use and is not part of a business network**. Click **Next**.
7. Click **Finish**.
8. Click **OK** on the message that states you must reboot for the changes to take effect.
9. Reboot the computer (**Start|Turn Off Computer|Restart**).

Project 3-7

This hands-on project assumes the Control Panel is in Classic View.

To create a hardware profile for a mobile computer:

1. Open the Control Panel (**Start|Control Panel**).
2. Open the **System** applet (double-click on the applet's icon).
3. Select the **Hardware** tab.
4. Click the **Hardware Profiles** button.
5. Select an existing hardware profile.
6. Click **Copy**, provide a new name, such as **Mobile Profile – no NIC**, click **OK**.
7. Click **OK** to close the Hardware Profiles dialog box.
8. Click **OK** to close the System Properties dialog box.
9. Reboot the system (**Start|Turn Off Computer|Restart**).
10. When prompted, select the new hardware profile using the arrow keys and press **Enter**.
11. Log into the system (**Ctrl+Alt+Delete**), providing your username and password if applicable.
12. Open the **Device Manager** (System applet, Hardware tab, Device Manager button).
13. Expand the **Network adapters** item by clicking the plus sign.
14. Select the listed NIC.
15. Right-click over the NIC, select **Properties** from the pop-up menu.
16. Change the **Device Usage** pull-down menu to read **Do not use this device (disable)**.
17. Click **OK**.
18. Close the Device Manager by clicking on the **X** in the upper right corner of the title bar.
19. Now your system has a normal hardware profile and a profile that has the NIC disabled for use when not connected to the network. Upon each reboot you can select the appropriate hardware profile.

Project 3-8

3

> This hands-on project assumes the Control Panel is in Classic View.
>
> _Note_

To monitor and manage a device via the Device Manager:

1. Open the Administrative Tools (**Start** | **Control Panel** | **Administrative Tools**).

2. Launch **Computer Management** by double-clicking on its icon.

3. From the System Tools section in Computer Management, select **Device Manager**.

4. Double-click the **DVD/CD-ROM drive** item to expand its contents.

5. Select one of the items that appear.

6. Select **Action** | **Properties**.

7. Notice the Device Status message. If all is well, the message should state that the device is working properly. If there were a problem with this device, information about the problem would be listed and you'd be instructed to press the **Troubleshooter** button to access the troubleshooting Wizard.

8. Select the **Properties** tab. This is where you configure specific hardware device settings.

9. Select the **Driver** tab. This is where you can obtain information about the current driver as well as details on updating, replacing, or removing the current driver.

10. Click **OK**.

11. Close the Computer Management tool by clicking on the **X** button in the right corner of the title bar.

CASE PROJECTS

1. You need to delegate administrative tasks to non–administrative users, but you are concerned about granting too much power to users. What can you do?

2. You want to participate in the SETI@home project (_http://setiathome.ssl.berkeley.edu/_). However, the utility consumes most of the CPU cycles when it is active. How can you participate in this project but still be able to get other work done on your computer?

3. You have a notebook computer with a docking station. The docking station hosts a 21" monitor, a DVD drive, a tape backup, and a color printer. What is the best method to enable your notebook computer to use the devices on the docking station while avoiding problems when not connected to the docking station?